PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	**Tseng**
Application No.:	**10/747848**
Filed:	**December 29, 2003**
For:	**Intraluminal Stent**
Examiner:	**Jonathan R. Stroud**
Group Art Unit:	**3774**

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Alexandria, VA 22313-1450

Docket No.: S63.2N-14166-US03

APPEAL BRIEF

This is an Appeal Brief for the above-identified application. A Notice of Appeal was filed in this case on January 15, 2010. The Commissioner is authorized to charge Deposit Account No. 22-0350 for any other fees which may be due with this Appeal.

(B) Table of Contents

(C) Real Party in Interest

The Application is assigned to Boston Scientific Scimed, Inc., formerly known as Scimed Life Systems, Inc., One SciMed Place, Maple Grove, Minnesota 55311-1566, a Minnesota corporation and a subsidiary of Boston Scientific Corporation, One Boston Scientific Place, Natick, Massachusetts 01760-1537, a Delaware Corporation.

(D) Related Appeals and Interferences

At present there are no related appeals or interferences.

(E) Status of Claims

Claims 1-2, 4-14, 16, 18-24, 29-35 are pending and the subject of this appeal.

Claims 3 and 25-27 are withdrawn.

Claims 15, 17, and 28 were cancelled.

(F) Status of Amendments

No Amendments were submitted in response to the Final Office Action.

(G) Summary of Claimed Subject Matter

A summary of representative claims and a non-limiting listing of locations and figures where support may be found [bracketed citations] is provided as follows:

Independent claim 1 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along the axis of said stent [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. Each of said hoops defined by a single continuous filament (11,24,81,86, 111) that defines a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. At least one connecting member (16,26,48,72,74) is between a first hoop and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]]. The connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. The connecting member comprises one of:

(a) a direct connection (16,48) between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]], or

(b) a separate bridging member (26,72,74) having a first portion welded to the first strut and a second portion welded to the second strut [paragraphs [0038], [0041], [0052]].

Independent Claim 5 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along the axis of said stent [paragraphs [0004], [0020], [0037] and Figs. 5, 6A, 6F]. Each of said hoops comprises a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. At least one connecting member (16,26,48,72,74) is between a first hoop (and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. The connecting member comprises one of:

(a) a direct connection (16,48) between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]], or

(b) a separate bridging member (26,72,74) having a first portion welded to the first strut and a second portion welded to the second strut [paragraphs [0038], [0041], [0052]]

The stent further comprises a plurality of connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees [paragraphs [0045], [0047]].

Independent Claim 6 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along the axis of said stent [paragraphs [0004], [0020], [0037] and Figs. 5, 6A, 6F]. Each of said hoops comprises a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. Wherein each element comprises an axial length and the axial lengths of the plurality of elements are generally uniform except for selected elements comprising one or both ends of said stent [paragraphs [0004], [0021], [0032]-[0033], [0035], [0042], [0050]; Figs. 5, 6F]. At least one connecting member (16,26,48,72,74) is between a first hoop (and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. The connecting member comprises one of:

(a) a direct connection (16,48) between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]], or

(b) a separate bridging member (26,72,74) having a first portion welded to the first strut (14) and a second portion welded to the second strut [paragraphs [0038], [0041], [0052]].

Independent Claim 8 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along the axis of said stent [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. Each of said hoops comprising a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. At least one connecting member (16,26,48,72,74) is between a first hoop and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]; Figs. 5, 6A, 6F]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. The connecting member comprises one of:

(a) a direct connection (16,48) between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]; Figs. 5, 6A, 6F], or

(b) a separate bridging member (26,72,74) having a first portion welded to the first strut (14) and a second portion welded to the second strut [paragraphs [0038], [0041], [0052]; Fig. 5].

The stent (10,30,40,60,70,80,110) further comprises an end hoop (33,37) disposed at each end of said stent in which apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent [paragraphs [0037], [0041]; Fig. 5, 6A, 6F].

Dependent Claim 9 recites the stent of claim 8, wherein the elements of said end hoop progressively shorter axial length or amplitude leading to an end strut (58) [paragraph [0042]; Figs. 5, 6A-D].

Dependent Claim 10 recites the stent of claim 8, wherein the struts between apex sections of said end hoop progressively further overlap struts of an adjacent hoop leading to an end strut (58) [paragraph [0042]; Figs. 5, 6A-D].

Dependent Claim 11 recites the stent of claim 10, wherein the end hoops (33,37) each comprise an end strut (58) that is aligned adjacent to and connected to another strut of said end hoop (33,37) [paragraph [0044]; Figs. 5 and 6A-D].

Dependent Claim 12 recites the stent of claim 11, wherein said end strut (58) is connected to said another strut with a weld having a first weld length (L2) and said connecting members in said hoops that are not end hoops comprise a weld having a second weld length (L1) that is less than said first weld length [paragraph [0048]; Figs. 6A-D].

Dependent Claim 13 recites the stent of claim 12, wherein the end strut (58) terminates short of said common plane perpendicular to the axis of the stent on which lie said end hoop apex sections that point outwardly from said stent [paragraph [0048]; Figs. 6A-D].

Independent Claim 14 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along an axis of the stent [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. Each hoop comprises a helical arrangement of a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. Wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a longitudinal axis of the stent [paragraphs [0037], [0043]; Fig. 5, 6A-E]. Adjacent circumferential hoops are engaged by at least one connector (16,26,48,72,74) [paragraphs [0004], [0005], [0024], [0036], [0038], [0041], [0044], [0046], [0052]; Fig. 5, 6A-E]. A first end of the at least one connector is parallel to and extending from a substantially straight strut of a first circumferential hoop and a second end of the at least one connector is parallel to and extending from a substantially straight strut of a second circumferential hoop [paragraphs [0024], [0038], [0041], [0044], [0046], [0052]].

Dependent Claim 18 recites the stent of claim 14, wherein an elongated strut of a first hoop lies adjacent to an elongated strut of an adjacent hoop for at least some axial distance to permit connection therebetween [paragraphs [0024], [0044], [0046]; Figs. 5, 6A, 6F].

Dependent Claim 19 recites the stent of claim 14, wherein the connecting member comprises a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]; Figs. 5, 6A, 6F].

Dependent Claim 20 recites the stent of claim 14, wherein the connecting member comprises a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut [paragraphs [0038]-[0044], [0052]; Fig. 5].

Dependent Claim 23 recites the stent of claim 14 further comprising a plurality of connecting members uniformly distributed along the stent according to a predetermined helical spacing [paragraphs [0041], [0046], [0047]; Figs. 5, 6A, 6F].

Independent Claim 22 recites an intraluminal stent (30,40,60) comprising a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]; Figs. 5, 6A, 6F]. Wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a longitudinal axis of the stent [paragraphs [0037], [0043]; Figs. 5, 6A-E]. The elements forming a plurality of circumferential hoops (25,33,37,42) are disposed in a helical succession along an axis of the stent [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. At least one connecting member (16,26,48,72,74) is between a first hoop (and an adjacent hoop and adapted to prevent relative axial movement between the first hoop (and the adjacent hoop [paragraphs [0004], [0005]; Figs. 5, 6A, 6F]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. An end hoop (33,37) is disposed at each end of said stent [paragraphs [0037], [0048], [0049]; Figs. 5, 6A, 6F]. Each end hoop extends all the way around the circumference of the stent [paragraph [0037]; Figs. 5, 6A, 6F]. Each end hoop is defined by a series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions wherein apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent [paragraphs [0037], [0048], [0049]; Figs. 5, 6A, 6F].

Independent Claim 24 recites an intraluminal stent (30,40,60) comprising a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]; Figs. 5, 6A, 6F]. Wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a longitudinal axis of the stent [paragraphs [0037], [0043]; Figs. 5, 6A-E]. A plurality of circumferential hoops (25,33,37,42) is disposed in a helical succession along an axis of the stent [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. At least one connecting member (16,26,48,72,74) is between a first hoop and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]; Figs. 5, 6A, 6F]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. A plurality of connecting members is uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees [paragraphs [0045], [0047]].

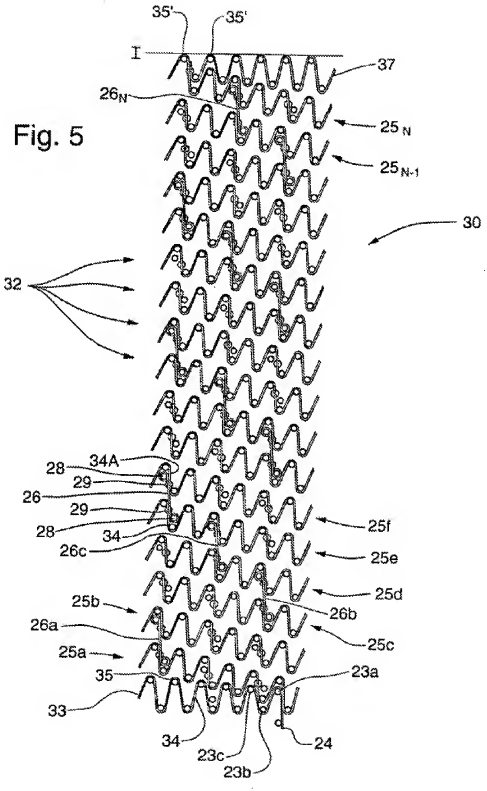
Independent Claim 32 recites an intraluminal stent (30,40,60) comprising a plurality of circumferential hoops (25,33,37,42) disposed in a helical succession along the axis of said stent [paragraphs [0004], [0020], [0037] and Figs. 5, 6A, 6F]. All of the plurality of circumferential hoops are defined by a single continuous filament (11,24,81,86, 111) that defines a helical arrangement of elements defined by a successive series of substantially straight struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions [paragraphs [0020], [0023], [0037], [0047], [0053]]. At least one connecting member (16,26,48,72,74) is between a first hoop and an adjacent hoop and adapted to prevent relative axial movement between the first hoop and the adjacent hoop [paragraphs [0004], [0005]; Figs. 5, 6A, 6F]. The connecting member comprises at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. The connecting member comprises one of:

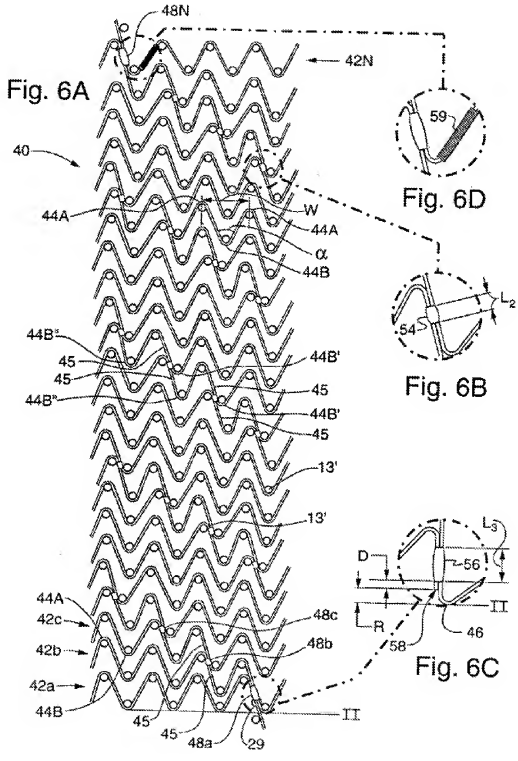
(a) a direct connection (16,48) between a linear portion of the first strut that lies side by side with a linear portion of the second strut [paragraphs [0024], [0044], [0046]], or

(b) a separate bridging member (26,72,74) having a first portion welded to the first strut (14) and a second portion welded to the second strut [paragraphs [0038], [0041], [0052]].

Independent Claim 33 recites a tubular stent (30,40,60) that has a tubular axis [paragraph [0004], [0020], [0037], [0052]]. The stent comprises a plurality of circumferential hoops (25,33,37,42) linearly disposed in succession along said axis [paragraphs [0004], [0020], [0037]; Figs. 5, 6A, 6F]. Each of said hoops comprising elements is defined by a successive series of struts (14,34,45,58,84) connected by apex sections (15,35,44,46,65,66,67,68,85) alternately pointing in opposite axial directions to form a continuous series of similarly-oriented apex sections that point in a first direction [paragraphs [0020], [0023], [0037], [0047], [0053]]. The similarly-oriented apex sections are arranged in a helix in which each hoop comprises one 360-degree wrap of said helix [paragraph [0043]; Fig. 6A]. At least one pair of adjacent hoops is connected to one another by a connecting member (16,26,48,72,74) [paragraphs [0004], [0005], 0024], [0036], [0038], [0041], [0044], [0046], [0052]; Figs. 5, 6A, 6F]. The connecting member connecting a first strut, which is part of one of said connected adjacent hoops, to a second strut, which is part of the other of said adjacent hoops [paragraphs [0024], [0036], [0038], [0041], [0044], [0046], [0052]]. Axially opposed apex sections) of adjacent hoops are axially spaced from one another and said connecting member is a bridging member (26,72,74) with a first end aligned with and connected to said first strut and a second end aligned with and connected to said second strut [paragraphs [0038], [0041], [0052]].

Fig. 5


35'
35'
I
37
26N
25N
25N-1
30
32
28
34A
29
26
29
28
34
26c
25f
25e
25d
25b
26b
26a
25c
25a
35
23a
33
34
23c
23b
24


48N
42N
Fig. 6A
40
44A
W
44A
α
44B
44B'
45
45
44B"
45
44B'
45
13'
13'
44A
42c
42b
42a
44B
48c
48b
II
45
45
48a
29
59
Fig. 6D
L_2
54
Fig. 6B
L_3
D
56
II
R
46
58
Fig. 6C

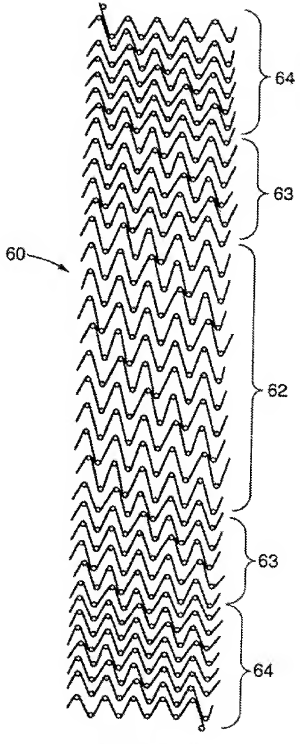


Fig. 6F

(H) Grounds of Rejection to be Reviewed on Appeal

1. Whether the Examiner erred in rejecting claims 1, 6, 8, 15, 24, 32, and 34-35 under 35 U.S.C. §102(b) as being anticipated by Kanesaka (5,810,872).

2. Whether the Examiner erred in rejecting claims 2, 4, 5, 7, 9-13, 18-21, 23, and 29-31 under 35 USC §103(a) as being unpatentable over Kanesaka (5,810,872).

3. Whether the Examiner erred in rejecting claims 14, 16, and 22 under 35 USC §103(a) as being unpatentable over Kanesaka (5,810,872) further in view of Becker (6,117,165).

(I) Argument

1. The Examiner erred in rejecting claims 1, 6, 8, 15, 24, 32, and 34-35 under 35 U.S.C. §102(b) as being anticipated by Kanesaka (5,810,872).

Claim 15 is not pending as it was cancelled during prosecution.

Moreover, although the heading in the Final Office Action did not include claim 22 as being anticipated by Kanesaka, the body of the rejection refers to claim 22. Out of an abundance of caution, Applicants will address the rejection of claim 22 as being anticipated by Kanesaka.

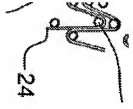
Independent claims 1, 6, 8, and 32 each recite, in part, the presence of a direct connection or a separate bridging member welded to a first strut and to a second strut. These features are not taught by Kanesaka.

Kanesaka does not teach a direct connection as recited in the instant claims

Specifically, independent claims 1, 6, 8, and 32 each recite in part:

> a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut

An example of a direct connection between the linear portions of two struts that lie side by side is shown, for example in Fig. 5 of the instant application as filed, a portion of which is provided for reference:



In contrast, the bridging strut 18 and joining members 29 are ***connectors*** that extend between two elements of the stent of Kanesaka, as shown in Figs. 1 and 6:

FIG. 1

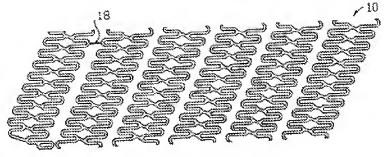
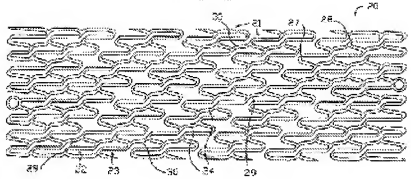


FIG. 5



The Examiner asserted that "portions 18, as well as all of the portions connecting element 10, are direct connections" (Final Office Action, pg. 2, paragraph 3). As discussed above, the instant claims recite a direct connection or a separate bridging member. This indicates that a direct connection is different from a separate bridging member. For at least these reasons, Kanesaka does not teach a direct connection as recited in the instant claims.

Kaneska does not disclose a separate bridging member welded to a first strut and to a second strut

Specifically, independent claims 1, 6, 8, and 32 each recite in part:

> a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut

Kanesaka does not disclose welding. Therefore, Kanesaka does not disclose a separate bridging member as recited in claims 1, 6, 8, and 32.

Kanesaka does not dislose a single continuous filament

Independent claim 32 recites "a single continuous filament." An example of a continuous filament provided in the instant application is a wire (paragraphs [0020] and [0037]).

Kanesaka does not that all the hoops are defined by a single continuous filament as recited in claim 32.[1] Kanesaka discloses that one strip or two strips are wound about to form the stent shown in Figs. 1 and 6 (col. 3, lines 50-52 and col. 4, line 51-53). In reference to the strip, Kanesaka states:

> the strip 11 is formed from a flat metal sheet by etching process or laser cutting. However, it is possible to form the pattern in a metal tube by etching. (col. 3, lines 63-65).

Thus, Kanesaka does not teach all the hoops are defined by a single continuous filament as recited in claim 32.

Kanesaka does not disclose an end hoop extending all the way around the circumference of the stent

Specifically, claim 22 recites:

> a helical arrangement of elements … forming a plurality of circumferential hoops disposed in a helical succession along an axis of the stent …
>
> an end hoop disposed at each end of said stent, each end hoop extending all the way around the circumference of the stent, each end hoop defined by a series of substantially straight struts connected by apex sections alternately pointed in opposite axial directions wherein apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent

An end hoop as recited in claim 22 is shown, for example, in Fig. 5 of the instant application. For reference, a copy of a portion of Fig. showing an end hoop 37 of the stent is provided:

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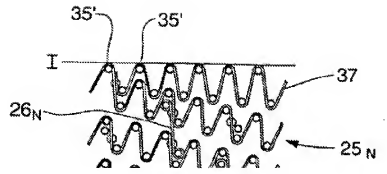
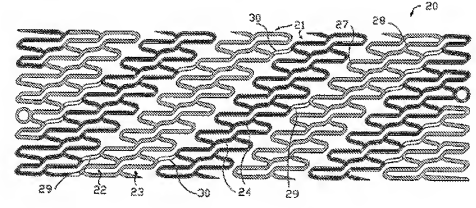
[1] Specifically, claim 32 recites:

> all of said plurality of circumferential hoops defined by a single continuous filament that defines a helical arrangement of elements defined by a successive series of substantially straight struts



The stent in Fig. 6 of Kanesaka does not have an end hoop as recited in claim 22. For reference a copy of Fig. 6 of Kanesaka has been annotated so that one strip is shaded dark gray and the other strip is shaded light gray.

FIG. 6



As can be seen above, because the stent of Fig. 6 of Kanesaka is formed by winding two strips 21 and engaging them one to another, each end of the stent is formed by both of the strips. Thus, the stent does not have end hoops as recited in claim 22. None of the other Kanesaka stents have the recited end hoop either.

Kanesaka does not teach a helical spacing of 450 degrees

Specifically, claim 24 recites in part:

> a plurality of connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees

The Examiner asserted:

> as is well shown in fig. 6 and as explained somewhat in the specification, the connection element 29 is distributed once every full turn plus one "peak" or connection. Since there are eight "peaks", each peak comprises 45 degrees of a winding. So, one full winding plus one peak would generally be equal to approximately 415 degrees.
> (*Final Office Action, pg. 2, paragraph 5*)

Applicants were unable to find any discussion in the specification of Kanesaka as to the spacing of the joining members 29. Moreover, the stent of Fig. 6 of Kanesaka, formed of two strips which are connected by joining members 29 and bridge members 30, does not support the Examiner's assertion.[2] For reference, Applicants have provided an annotated copy of Fig. 6 of Kanesaka where all connecting members 29 are shaded dark gray and bridge struts 30 are shaded light grey and one strip is indicated by line A:

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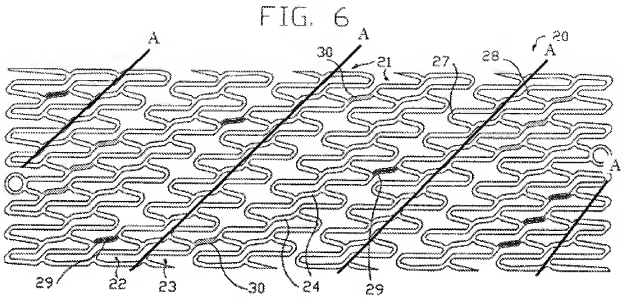
[2] In regards to Fig. 6, Kanesaka states:

> Figs. 6 and 7 show a second embodiment 20 of a stent … formed by spirally winding two strips 21 situated adjacent to each other. The strip 21 includes two tortuous members 22,23 connected by connecting members or joint struts 24 …
>
> two strips 21 are joined by joining members 29 and are wound spirally in a circular shape, and the wound strips in the circular shape are partly connected by bridge struts 30 to prevent unwinding. (*col. 4, line 51 to col. 5, line 2*)



As shown above, the joining members 29 and the bridge struts 30 are not uniformly distributed, either as a whole or as individual groups.[3] Moreover the joining members 29 and the bridge struts 30 are not spaced once approximately once every 450 degrees.

Based on the above, Kanesaka does not teach a plurality of connecting members uniformly distributed, let alone a spacing of once approximately every 450 degrees as recited in claim 24.

Kanesaka does not disclose a connecting member that is a bridging member with a first end aligned with and connected to said first strut and a second end aligned with and connected to said second strut

Specifically, claim 33 recites in part:

> a plurality of circumferential hoops … each of said hoops comprising elements defined by a successive series of struts connected by apex sections …
>
> at least one pair of adjacent hoops being connected to one another by a connecting member, said connecting member connecting a first strut, which is part of one of said connected adjacent hoops, to a second strut, which is part of the other of said

[3] As shown above, the bridging member 29 labeled at the bottom left is separated from the next bridging member (not labeled) by four convex or concave portions 27,28 and that bridging member 29 is separated from the next bridging member (labeled) by at least 5 convex or concave portions 27,28. None of the three bridging members 29 are separated from the next bridging member by 450 degrees. An analysis of the bridge struts 30 produces similar results.

adjacent hoops,

wherein axially opposed apex sections of adjacent hoops are axially spaced from one another and said connecting member is a bridging member with a first end aligned with and connected to said first strut and a second end aligned with and connected to said second strut

With regard to struts and apex sections as recited in claim 33, the instant application states:

> Each of the hoops has zig-zag or sinusoidal members defined by a successive series of struts connected by apex sections alternately pointing in opposite axial directions. The struts may be substantially straight sections connected to essentially sharp apex sections in a jagged zig-zag configuration, or the apex sections may be more rounded so that together with the struts there is formed a sinusoidal configuration.
> (*paragraph [0004]; see also e.g. paragraphs [0023]-[0024], [0030], [0036]*)

In light of the above, a strut as recited in the instant claims does not include an apex section. This interpretation is "consistent with the interpretation that those skilled in the art would reach" (MPEP §2111). As can be seen by the discussion of Kanesaka below, Kanesaka differentiates between struts and the turns connecting adjacent struts (e.g. apex sections as recited in the instant claims).

The ends of the joint struts 14, the joining members 29, the joint struts 24, and the joint struts 41 of Kanesaka, are not aligned with struts 15, 25, 26, 37, 38 but instead are at an angle to the struts 15, 25, 26, 37, 38, as shown in Figs. 3, 6, and 8:[4]

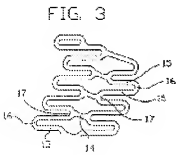


Fig. 6

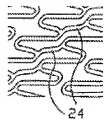


Fig. 6

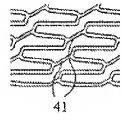


Fig. 8

[4] See also col. 3, line 59: "The connecting members 14 extend diagonally"; and col. 4, line 64: "diagonal connecting members 24"

Moreover, the bridge struts 18, the joint struts 14, the joining members 29, the joint struts 24, and the joint struts 41 of Kanesaka are connected to convex portions 16, 17, 27, 28 and connecting portions 40, not to struts 15, 25, 26, 37, 38, as shown in Figs. 3, 6 and 8 above, and Fig. 1 below:[5]

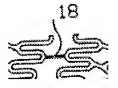


Fig. 1

The struts 15, 25, 26, 37, 38 of Kanesaka are engaged to adjacent struts 15, 25, 26, 37, 38 either by convex portions 16, 17, 27, 28 or by connecting portions 40, as shown in the figures above.[6]

Based on the above, Kanesaka does not teach each and every element of independent claim 33.

Conclusion

Based on the above, Kanesaka does not teach each and every element of the above-mentioned claims. Therefore, Kanesaka does not anticipate claims 1, 6, 8, 15, 22, 24, 32, and 33. Applicants request reversal of the rejection.

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[5] see also col. 3, lines 58-60: "The tortuous members 12,13 are connected by the connecting members 14 at the convex portions 17";
col. 4, lines 63-65: "The tortuous members 22,23 are connected by the diagonal connecting members 24 at the convex portions 28"

[6] see also col. 3, lines 54-56: "As shown in Fig. 3, each of the tortuous members 12,13 is formed of a plurality of parallel members or struts 15 and convex portions 16,17 for connecting the struts 15";
col. 4, lines 55-58: "As shown in Fig. 7, each of the tortuous members 22, 23 is formed of a plurality of struts 25,26 and convex or connecting portions 27, 28 for connecting the struts 25,26"; and
col. 5, lines 17-21: "The tortuous member 36 includes long struts 37, and short struts 38 … Connecting portions 40 connect the short and long struts 37,38 to form the tortuous member 36".

2. The Examiner erred in rejecting claims 2, 4, 5, 7, 9-13, 18-21, 23, and 29-31 under 35 USC §103(a) as being unpatentable over Kanesaka (5,810,872).

Applicants note that the heading for the rejection does not include claims 14 and 16 but that these claims are referred to in the body of the rejection. Therefore, out of an abundance of caution, Applicants will address claims 14 and 16 below as well.

Claims 2, 4, and 29-31

Claims 2, 4 and 29-31 depend upon independent claim 1. Claim 7 depends upon independent claim 6. Claims 9-13 depend upon independent claim 8. As discussed above, Kanesaka does not teach each and every element of independent claims 1, 6, and 8. Moreover, Kanesaka does not suggest each and every element of independent claims 1, 6, and 8. For at least this reason, Kanesaka does not render claims 2, 4, 7, 9-13, and 29-31 obvious.

The rejection of the instant claims as being unpatentable over Kanesaka is deficient at least because the Examiner's obviousness rejection is a *per se* rule of obviousness, which is improper.[7] As can be seen from the rejection, the Examiner generally rejected claims 2, 4, 5, 7, 9-13, 18-21, 23, and 29-31 as a group:

> Kanesaka generally teaches the stent as described above and provides a number of embodiments listed which encompass many of the slight changes in length, frequency, shape or orientation of the strut or strut elements; further it has been held that changes in shape and size, the duplication of parts, or the

[7] See, for example, MPEP §2116.01:

> the Federal Circuit held that the use of *per se* rules is improper in applying the test for obviousness under 35 U.S.C. 103. Rather, 35 U.S.C. 103 requires a highly fact-dependent analysis involving taking the claimed subject matter as a whole and comparing it to the prior art.

and MPEP §2144.08:

> Use of *per se* rules by Office personnel is improper for determining whether claimed subject matter would have been obvious under 35 U.S.C. 103.

> experimentation within known parameter are all obvious to one of ordinary skill in the art at the time of invention.[8]

However, as can be seen by the discussion of individual claims below, the claims recite more than "slight changes in length, frequency, shape or orientation." For example, claims 5, 11-12, 14, and 18-20 recite the structural configuration of the connectivity between two parts of the stent.

Independent Claim 5

Kanesaka does not render independent claim 5 obvious. Independent claim 5 recites in part:

> (a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or
>
> (b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut
>
> said stent further comprising a plurality of connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees

As discussed above, Kanesaka does not teach a direct connection, welding, or connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees. Moreover, Kanesaka does not suggest a direct connection, welding, or connecting members uniformly distributed along the stent according to a helical spacing of once every 450 degrees. Therefore, Kanesaka does not render independent claim 5 obvious.

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[8] The Examiner also provided a laundry list of categories provided in MPEP §2144.04 Legal Precedent as a source of Supporting Rationale: "Making Separable," "Making Integral," "Making Continuous," "Duplication of Parts," and "Rearrangement of Parts".

MPEP §2144.04 also states that "if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court." However, the Examiner did not discuss how the facts of any prior legal decision were similar to those at issue in this case, nor did the Examiner provide a rationale for any particular claim as to why it was obvious, other than the general rationale provided above.

The Examiner asserted that "claim 5 is rejected with regards to the case law that indicates that changes in values absent some convincing proof of their significance would be obvious to one of ordinary skill in the art. Here, none has been given" (Final Office Action, pg. 3, paragraph 7).

The instant application states "connecting members 48a-N are uniformly distributed in a helical spacing approximately every 450° along the length of the stent to form a helical spine" (paragraph [0047]). With reference to the spine, the instant application states:

> Connective spine 16 lends strength, including hoop strength, to stent 10 during and after implantation to better resist compressive forces within the vessel in which stent 10 is implanted. Connective spine 16 also allows flexibility, however, such that stent 10 may be easily compressed and expanded during the insertion process.
> *(paragraph [0028]; see also paragraphs [0004]-[0005]; [0030][9]; [0045] and [0047][10])*

Based on the above, Applicants request reversal of the rejection.

Dependent Claim 10

Dependent claim 10 recites "wherein the struts between apex sections of said end hoop progressively further overlap struts of an adjacent hoop leading to an end strut."

The instant application discloses that "[t]o make [the] transition from hoops other than perpendicular end hoops 33 and 37 to the end hoops, the successive lengths of struts in the end hoops may be reduced along the circumference of the hoops" (paragraph [0042]).

The Examiner has not indicated what in Kanesaka is considered to be an end strut as recited in claim 10. Even so, as shown in the figures of Kanesaka, struts of adjacent hoops are longitudinally separated from one another so that struts of two adjacent hoops do not overlap one another. Moreover, Kanesaka does not suggest winding the strips of an end hoop so that struts of adjacent windings overlap one another. Therefore, Kanesaka does not render claim 10 obvious.

For at least this reason, Applicants request reversal of the rejection.

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[9] "The strength and rigidity of stent 10A increase with the addition of connective spines 16."

[10] "connecting members 48a-N are uniformly distributed in a helical spacing approximately every 450° along the length of the stent to form a helical spine"

Dependent Claim 12

Dependent claim 12 recites "wherein the end hoops each comprise and end strut that is aligned adjacent to and connected to another strut of said end hoop; wherein said end strut is connected to said another strut with a weld having a first weld length and said connecting members in hoops that are not end hoops comprise a weld having a second weld length that is less than said first weld length."

The different weld lengths can be seen for example in Fig. 6 of the instant application. In reference to first and second welds as recited in claim 12, the instant application states:

> For adjacent, aligned struts 48b-48n-1, the portion of each strut adjacent one another may be of a firs length having a weld 54 of length L_1 … For adjacent, aligned struts 48a and 48N on the end hoops, however, the portions of each strut adjacent one another may be longer, and thus may include a weld 56 of length L_2 (*paragraph [0048]*)

As discussed above in reference to independent claims 1, 6, 8 and 32, Kanesaka does not teach welding, let alone a weld having a first weld length and a weld having a second weld length that is less than the first weld length as recited in claim 12. Moreover, Kanesaka does not suggest welding or welds with different weld lengths. Therefore, Kanesaka does not render claim 12 obvious.

For at least this reason, Applicants request reversal of the rejection.

Dependent Claim 13

Dependent claim 13 depends upon dependent claim 12 and recites "wherein the end strut terminates short of said common plane perpendicular to the axis of the stent on which lie said end hoop apex sections that point outwardly from said stent."

The instant application states:

> To avoid sharp edges protruding from the stent, end strut 58 may be cut, as shown in FIG. 6C, so that it terminates a distance D from weld 56 in a position that lies short of plane II on which apex section 46 lies. For instance, the end of end strut 58 may be cut so that it terminates a distance above plane II equivalent to the radius R of apex section 46.
> (*paragraph [0048]*).

For reference, a copy of Fig. 6C is provided:

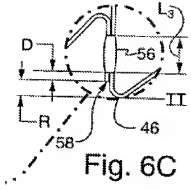
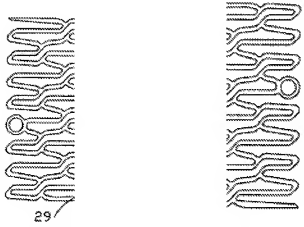


Fig. 6C

As shown by the end portions of Fig. 6 of Kanesaka, provided for reference, Fig. 6 of Kanesaka does not teach or suggest an end strut as recited in claim 13:



For at least this reason, Kanesaka does not render claim 13 obvious and Applicants request reversal of the rejection.

Independent Claim 14

Independent claim 14 recites:

> adjacent circumferential hoops being engaged by at least one connector, a first end of the at least one connector being parallel to and extending from a substantially straight strut of a first circumferential hoop and a second end of the at least one connector being parallel to and extending from a substantially straight strut of a second circumferential hoop

As discussed above in reference to claim 33, the joint struts 14, the bridge struts 18, the connecting members 24 and the joining members 29 of Kanesaka extend from convex portions, not struts. Kanesaka neither teaches nor suggests a first end of a connector extending from a substantially straight strut of a first circumferential hoop and a second end extending from a substantially straight strut of a second circumferential hoop as recited in claim 14.

Moreover, Kanesaka does not teach or suggest a connector with a first end parallel to a strut of a first circumferential hoop and a second end parallel to a strut of a second circumferential hoop. As discussed above in reference to claim 33, Kanesaka discloses that the connectors are at an angle to the struts. This can be seen in Figs. 1 and 6 of Kanesaka. Kanesaka also discloses that "[t]he connecting members 14 extend diagonally, so that when the stent 10 is enlarged, the connecting members 14 can be bent easily (col. 3, lines 60-63). Thus, the joint struts 14 and the connecting struts 24 of Kanesaka do not have a first end parallel to and extending from a substantially straight strut of a first circumferential hoop and a second end parallel to and extending from a substantially straight strut of a second circumferential hoop as recited in claim 14. For at least this reason, Kanesaka does not suggest a connector with a first end parallel to a strut of a first circumferential hoop and a second end parallel to a strut of a second circumferential hoop.

Based on the above, Applicants request reversal of the rejection.

Dependent Claim 18

Dependent claim 18 depends on claim 14 and recites:

> wherein an elongated strut of a first hoop lies adjacent to an elongated strut of an adjacent hoop for at least some axial distance to permit connection therebetween

Kanesaka does not teach or suggest a strut of a first hoop laying adjacent to an elongated strut of an adjacent hoop for at least some axial distance to permit connection therebetween as recited in claim 18. As discussed above in reference to dependent claim 10, in Kanesaka, the struts of adjacent hoops are longitudinally separated from one another so that struts of two adjacent hoops do not lie adjacent to one another and Kanesaka does not suggest having struts of two adjacent hoops laying adjacent to one another. For at least this reason, Kanesaka does not render claim 18 obvious.

For at least this reason, Applicants request reversal of the rejection.

Dependent Claim 19

Dependent claim 19 depends on claim 14 and recites:

> wherein the connecting member comprises a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut.

As discussed above in reference to claims 1, 6, 8, and 32, Kanesaka does not teach or suggest a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut as recited in claim 19. For at least this reason, Applicants request reversal of the rejection.

Dependent Claim 20

Dependent claim 20 depends on claim 14 and recites:

> wherein the connecting member comprises a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut

As discussed above in reference to claims 1, 6, 8, and 32, Kanesaka does not disclose welding as recited in claim 20. Also as discussed above, Kanesaka does not teach or suggest at least one connector with a first end parallel to and extending from a substantially straight strut of a first circumferential hoop and a second end parallel to and extending from a substantially straight strut of a second circumferential hoop. Moreover, neither the joint strut 18 nor the connecting member 14 of Fig. 1 of Kanesaka is a connecting member that comprises a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut as recited in claim 20 since each are engaged to and extend between convex portions.

Based on the above, Kanesaka does not render claim 20 obvious. Applicants request reversal of the rejection.

Dependent Claim 23

Dependent claim 23 depends upon independent claim 14 and recites

> further comprising a plurality of connecting members uniformly distributed along the stent according to a predetermined helical spacing

As discussed above in reference to claim 24, Fig. 6 of Kanesaka does not teach or suggest connecting members that are uniformly distributed along the stent as recited in dependent claim 23. For at least this reason, Kanesaka does not render claim 23 obvious.

Claims 18-21 and 23

Claims 18-21 and 23 depend upon independent claim 14. The Examiner rejected claim 14 as being unpatentable over Kanesaka in view of Becker. Therefore, it is not seen how Kanesaka by itself can render claims 18-21 and 23 obvious in view of the Examiner's reliance on the combination of Kanesaka and Becker to reject independent claim 14.

3. The Examiner erred in rejecting claims 14, 16, and 22 under 35 USC §103(a) as being unpatentable over Kanesaka (5,810,872) further in view of Becker (6,117,165).

The Final Office Action mailed 12/9/2009 states that "Applicant's arguments with respect to claims 14, 16 and 22 have been considered but are moot in view of the new ground(s) of rejection." However, the rejection of claims 14, 16 and 22 over Kanesaka further in view of Becker was maintained (see pg. 6-7).

Becker is not prior art to the instant application. Becker was filed June 10, 1998 and was published as a patent on September 12, 2000. The instant application claims priority to March 5, 1998. Thus, Becker is not prior art under 35 USC 102(a), 35 USC 102(b), or 35 USC 102(e)(2).

Applicants request reversal of the rejection.

CONCLUSION

Instant claims 1-2, 4-14, 16, 18-24, 29-32, and 34-35 are patentably distinct over Kaneska and claims 14, 16, and 22 are allowable over the combination of Kanesaka and Becker since Becker is not prior art to the instant application. Consequently reversal of the rejections is respectfully requested.

Respectfully submitted,
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Date: March 15, 2010

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(J) Claims Appendix

1. An intraluminal stent comprising:

a plurality of circumferential hoops disposed in a helical succession along the axis of said stent, each of said hoops defined by a single continuous filament that defines a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, and

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.

2. The stent of claim 1, wherein at least one apex section comprises two struts attached thereto and one strut is longer than the other strut.

4. The stent of claim 1 further comprising a plurality of connecting members uniformly distributed along the stent according to a predetermined helical spacing.

5. An intraluminal stent comprising:

a plurality of circumferential hoops disposed in a helical succession along the axis of said stent, each of said hoops comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, and

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut

said stent further comprising a plurality of connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees.

6. An intraluminal stent comprising:

a plurality of circumferential hoops disposed in a helical succession along the axis of said stent, each of said hoops comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions wherein each element comprises an axial length and the axial lengths of the plurality of elements are generally uniform except for selected elements comprising one or both ends of said stent, and

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.

7. The stent of claim 6, wherein said end elements define a plane perpendicular to the axis of said stent.

8. An intraluminal stent comprising;

a plurality of circumferential hoops disposed in a helical succession along the axis of said stent, each of said hoops comprising a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, and

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut,

said stent further comprising an end hoop disposed at each end of said stent in which apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent.

9. The stent of claim 8, wherein the elements of said end hoop progressively shorter axial length or amplitude leading to an end strut.

10. The stent of claim 8, wherein the struts between apex sections of said end hoop progressively further overlap struts of an adjacent hoop leading to an end strut.

11. The stent of claim 10, wherein the end hoops each comprise an end strut that is aligned adjacent to and connected to another strut of said end hoop.

12. The stent of claim 11, wherein said end strut is connected to said another strut with a weld having a first weld length and said connecting members in said hoops that are not end hoops comprise a weld having a second weld length that is less than said first weld length.

13. The stent of claim 12, wherein the end strut terminates short of said common plane perpendicular to the axis of the stent on which lie said end hoop apex sections that point outwardly from said stent.

14. An intraluminal stent comprising a plurality of circumferential hoops disposed in a helical succession along an axis of the stent, each hoop comprising a helical arrangement of a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a

longitudinal axis of the stent, adjacent circumferential hoops being engaged by at least one connector, a first end of the at least one connector being parallel to and extending from a substantially straight strut of a first circumferential hoop and a second end of the at least one connector being parallel to and extending from a substantially straight strut of a second circumferential hoop.

16. The stent of claim 14, wherein said connecting members are parallel to and extend from said longer struts.

18. The stent of claim 14, wherein an elongated strut of a first hoop lies adjacent to an elongated strut of an adjacent hoop for at least some axial distance to permit connection therebetween.

19. The stent of claim 14, wherein the connecting member comprises a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut.

20. The stent of claim 14, wherein the connecting member comprises a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.

21. The stent of claim 14, wherein at least one apex section comprises an included angle, the apex sections arranged in a pattern in which the included angles are generally uniform except for selected apex sections having non-uniform included angles to enable said portion of said first strut to align with said portion of said second strut.

22. An intraluminal stent comprising:

a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a longitudinal axis of the stent;

the elements forming a plurality of circumferential hoops disposed in a helical succession along an axis of the stent,

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the

connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop; and

an end hoop disposed at each end of said stent, each end hoop extending all the way around the circumference of the stent, each end hoop defined by a series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions wherein apex sections that point outwardly from said stent lie in a common plane perpendicular to the axis of said stent.

23. The stent of claim 14 further comprising a plurality of connecting members uniformly distributed along the stent according to a predetermined helical spacing.

24. An intraluminal stent comprising:

a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, wherein at least one apex section comprises two struts attached thereto with one strut longer than the other strut, in which for each apex section comprising one strut longer than the other, the two struts lie on a cylindrical surface having a common radius relative to a longitudinal axis of the stent;

a plurality of circumferential hoops disposed in a helical succession along an axis of the stent;

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop; and

a plurality of connecting members uniformly distributed along the stent according to a helical spacing of once approximately every 450 degrees.

29. The stent of claim 1, wherein the separate bridging member is parallel to a linear portion of the first strut and to a linear portion of the second strut.

30. The stent of claim 1, wherein the separate bridging member is attached to a linear portion of the first strut and a linear portion of the second strut.

31. The stent of claim 1, wherein the separate bridging member connects only two adjacent hoops.

32. An intraluminal stent comprising:

a plurality of circumferential hoops disposed in a helical succession along the axis of said stent, all of said plurality of circumferential hoops defined by a single continuous filament that defines a helical arrangement of elements defined by a successive series of substantially straight struts connected by apex sections alternately pointing in opposite axial directions, and

at least one connecting member between a first hoop and an adjacent hoop adapted to prevent relative axial movement between the first hoop and the adjacent hoop, the connecting member comprising at least a portion of a first strut in one hoop connected to at least a portion of a second strut in an adjacent hoop, wherein the connecting member comprises one of:

(a) a direct connection between a linear portion of the first strut that lies side by side with a linear portion of the second strut, or

(b) a separate bridging member having a first portion welded to the first strut and a second portion welded to the second strut.

33. A tubular stent having a tubular axis, said stent comprising:

a plurality of circumferential hoops linearly disposed in succession along said axis, each of said hoops comprising elements defined by a successive series of struts connected by apex sections alternately pointing in opposite axial directions to form a continuous series of similarly-oriented apex sections that point in a first direction, said similarly-oriented apex sections arranged in a helix in which each hoop comprises one 360-degree wrap of said helix,

at least one pair of adjacent hoops being connected to one another by a connecting member, said connecting member connecting a first strut, which is part of one of said connected adjacent hoops, to a second strut, which is part of the other of said adjacent hoops,

wherein axially opposed apex sections of adjacent hoops are axially spaced from one another and said connecting member is a bridging member with a first end aligned with and connected to said first strut and a second end aligned with and connected to said second strut.

35. The stent of claim 34, wherein not all of the apex sections that point in the first axial direction are connected to apex sections that point in the second axial direction on axially adjacent traversals of said helix.

(K) Evidence Appendix - None

(L) Related Proceedings Appendix - None